

IN THE CLAIMS

1. (Currently Amended) Surface modified titanium dioxide fine particles comprising titanium dioxide having a surface which is modified with a hydrophilic polymer having carboxyl groups, the carboxyl groups in the hydrophilic polymer being bonded to titanium dioxide through an ester linkage,wherein said titanium dioxide is an anatase or rutile form of titanium dioxide.

2. (Cancelled)

3. (Previously Presented) The surface modified titanium dioxide fine particles according to claim 1, wherein said titanium dioxide has a particle diameter of 2 to 200 nm.

4. (Previously Presented) The surface modified titanium dioxide fine particles according to claim 1, wherein said titanium dioxide is a composite titanium dioxide comprising titanium dioxide and a magnetic material.

5. (Previously Presented) The surface modified titanium dioxide fine particles according to claim 1, wherein said hydrophilic polymer is a water soluble polymer.

6. (Original) The surface modified titanium dioxide fine particles according to claim 5, wherein said water soluble polymer contains a polycarboxylic acid.

7. (Original) The surface modified titanium dioxide fine particles according to claim 5,

wherein said water soluble polymer comprises a copolymer having a plurality of carboxyl group units in its molecule.

8. (Original) A dispersion liquid of surface modified titanium dioxide fine particles, comprising the surface modified titanium dioxide fine particles according to claim 1 any one of claims 1 to 7 dispersed in an aqueous solvent.

9. (Original) The dispersion liquid of surface modified titanium dioxide fine particles according to claim 8, wherein said aqueous solvent has a pH value of 3 to 13.

10. (Original) The dispersion liquid of surface modified titanium dioxide fine particles according to claim 9, wherein said aqueous solvent is a pH buffer solution.

11. (Original) The dispersion liquid of surface modified titanium dioxide fine particles according to claim 9, wherein said aqueous solvent is physiological saline.

12. (Withdrawn) A method for treating an affected region of the body of a subject comprising (a) providing the dispersion liquid of surface modified titanium dioxide fine particles according to Claim 9 as an auxiliary material for phototherapy (b) introducing the auxiliary material into the body in the affected region and (c) applying ultraviolet light to the affected region to destroy the affected region.

13. (Withdrawn) The method according to claim 12, wherein said affected region is a cancer tissue.

14. (Withdrawn) A process for producing the surface modified titanium dioxide fine particles according to claim 1, said process comprising: (1) a first step of dispersing a titanium dioxide sol in a solvent to form a first dispersion liquid; (2) a second step of dispersing the hydrophilic polymer in a solvent to form second dispersion liquid; (3) a third step of mixing the first and second dispersion liquids together to form a mixed liquid; (4) a fourth step comprising heating the mixed liquid to form a heated mixed liquid comprising the surface modified titanium dioxide fine particles and unbonded hydrophilic polymer molecules; (5) a fifth step of separating the surface modified titanium dioxide fine particles from the unbonded hydrophilic polymer molecules; and (6) a sixth step of purifying the separated surface modified titanium dioxide fine particles.

15. (Withdrawn) The process for producing surface modified titanium dioxide fine particles according to claim 14, wherein the solvent used in the first step and the solvent used in the second step are an aprotic solvent.

16. (Withdrawn/Currently amended) The process for producing surface modified titanium dioxide fine particles according to claim 15, wherein said aprotic solvent is selected from the group consisting ~~consisting~~ of dimethylformamide, dioxane, and dimethylsulfoxide.

17. (Withdrawn) The process for producing surface modified titanium dioxide fine particles according to claim 14, wherein the heating temperature in the fourth step is from 80 to 220°C.

18. (Withdrawn) The process for producing surface modified titanium dioxide fine

particles according to claim 14, wherein the fifth step comprises adjusting the mixed liquid to a pH of not more than 2.8 to allow only the surface modified titanium dioxide fine particles to cause isoelectric coagulation, and removing the unbonded hydrophilic polymer molecules as a supernatant.

19. (Withdrawn) The process for producing surface modified titanium dioxide fine particles according to claim 14, wherein the fifth step comprises removing the hydrophilic molecules remaining unbonded by molecular sieves.

20. (Withdrawn) The process for producing surface modified titanium dioxide fine particles according to claim 14, wherein the sixth step comprises dispersing the surface modified titanium dioxide fine particles in an aqueous solvent and then drying the fine particles.

21. (Withdrawn/Currently Amended) The process for producing surface modified titanium dioxide fine particles according to any claim 14, wherein the ~~sixth~~ fifth step comprises dispersing the surface modified titanium dioxide fine particles in an aqueous solvent and then precipitating the surface modified titanium dioxide by salting-out.

22. (Withdrawn/Currently Amended) The process for producing surface modified titanium dioxide fine particles according to claim 14, wherein the ~~sixth~~ fifth step comprises dispersing the surface modified titanium dioxide fine particles in an aqueous solvent and then precipitating the surface modified titanium dioxide fine particles with an organic solvent.

23. (Withdrawn/Currently Amended) A composition comprising the surface modified titanium dioxide fine particles according to claim 1 produced by a process comprising (a) providing titanium dioxide fine particles having a size of 2 to 200nm, said titanium dioxide fine particles having a surface and an interior, (b) modifying the surface of the titanium dioxide fine particles by mixing a dispersion liquid of the titanium dioxide particles with a solution comprising a water soluble polymer to form a mixture, (c) heating the mixture at 80 to 220°C to form surface modified titanium dioxide fine particles comprising an ester bond between the titanium dioxide particles and molecules of the water soluble polymer at the surface of the titanium dioxide fine particles, (d) removing unbonded water soluble polymer molecules and (e) recovering the surface modified titanium dioxide fine particles, said process producing the surface modified fine particles with an isoelectric point of around 2.8 to 2.9.